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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,317

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John Stark

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EXAMINER

WEINSTEIN, LEONARD J

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

02/18/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/561,317	Applicant(s) STARK, JOHN	
	Examiner LEONARD J. WEINSTEIN	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12, 16 and 18-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12, 16 and 18-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 12, 2010 has been entered.
2. The examiner acknowledges the amendments to claims 9-11. The examiner notes that claims 1-8, 13-15, and 17 have been canceled and claims 18-22 have been introduced.

Claim Objections

3. Claims 9, 18, and 22 are objected to because of the following informalities:
 - a. The preamble of each claim includes "A double-cone device of continuous geometry." Since "the geometry" is claimed after the preamble in each claim, "geometry" is being claimed as a separate element. Therefore the preamble should be amended to recite --- A double-cone device of a continuous geometry - --.
 - b. The preamble of each claim, and line 13 in claim 22, includes the recitation of "the device." These recitations should be amended to recite --- the double-cone device ---.
- Appropriate correction is required.

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4. Claims 10-12, 16, 19-21, and 23 are objected to because of the following informalities: each claim has at least one recitation of “the device.” The recitation of “the device” in each claim should be amended to recite --- the double-cone device --- as it was introduced in each of the independent claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 18, and by dependency claims 19-21, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitations including “the 500 μ m upper bound of hole size being configured to prevent interferences with the continuous geometry of the double-cone device so as to provide relatively silent suction of the fluid and the 50 μ m of hole size being configured to prevent reduction of the suction capacity” are not explicitly supported by the original specification. It is noted that the specification discloses “[f]or the porous material, hole sized in the range of 50 to 500 μ m are used to provide a relatively silent suction (low noise level) without reducing the suction capacity.” US Application 10/561317, pg. 10, ll. 19-21. The specification does not delineate between performance characteristics

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attributable to different portions of the range disclosed. The examiner notes that in the applicant's remarks in the Amendment of October 12, 2010 ("Amendment"), pg. 12, it is asserted that "it can be deduced that the upper bound of hole size of 500 μm in the second porous diverging section is configured to prevent interferences with the continuous geometry of the double cone device." Although the applicant's justification for this deduction is plausible and may be in fact be correct, the specific benefits of the upper and lower bounds for hole sizes was not included in the original specification. Rather the disclosure provides that holes within this range provide the claimed benefit, not that holes that are near one limit provide one benefit and holes near the lower bound provide another benefit.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 9, 16, 18, and 22, and by dependency claims 10-12, 19-20, and 23, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claims 9, 18, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite because:

a. The following limitations lack antecedent basis:

i. Line 6 (claims 9, 18, 22) – "the smaller diameter end of the interior space."

The limitations will be considered to be:

– ~~the~~ a smaller diameter end of the interior space ---

- ii. Line 8 (claims 9, 18, 22) - “having holes” and line 9 (claims 9, 18, 22) - “the range of holes”;

Therefore the limitations including:

– “having holes with sizes in a range of 50 to 500 μ m, the range of hole sizes”

will be considered to be:

– --- having a plurality of holes with ~~sizes in~~ a range of hole sizes of 50 to 500 μ m, the range of hole sizes ---

- iii. Line 10 (claims 9 and 22) and Lines 12-13 (claim 18) – “the suction capacity.”

The limitations will be considered to be:

– --- ~~the~~ a suction capacity of the second porous diverging section

- iv. Line 12 (claims 9 and 22) and Line 15 (claim 18) - “the larger diameter end of the interior space.”

The limitations will be considered to be:

– --- ~~the~~ a larger diameter end of the interior space ---

- b. The limitation of “the fluid” in line 9 of each claim lacks antecedent basis.

Applicant may assert that “a fluid” was introduced in the preamble of the claim; however per the preamble this fluid undergoes a change in pressure. In the instant disclosure the fluid that undergoes a pressure drop is the “feed fluid,” and

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not the fluid (or material) that is being sucked into the orifice of the double cone device. Application, pg. 2, ll. 10-22; pg. 8 ll. 18-25. The examiner also notes that pursuant to the specification this distinction must be made in the claims because the flow profile that remains in contact with the walls of the double cone device is the feed flow and not apparently not a mixture of the feed flow and a material sucked in through the second porous diverging section. Application, pg. 11, lines 4-6 ("The continuous geometry of the double-cone device of the present invention causes the feed flow profiles in orifice 308 and exit cone 304 to remain in contact with the wall.") Thus if the limitation "silent suction of the fluid" were to remain, a recitation of "the fluid" would encompass sucked in fluid and the limitation of "a profile of the fluid that flows through the double-cone device" would be a claim essentially to a combined fluid. As discussed above the specification makes clear that "flow profile" is a characteristic of the feed flow through the double cone and not a mixture of fluids, or just the feed flow portion of fluid through the double-cone. The examiner also notes that clarification on this matter is required in order to properly consider the limitations of claim 16 and the final paragraph of claim 22.

10. Claim 16 recites the limitations "the flow profiles" in line 2, and "the wall" in lines 2-3 of the claim. There is insufficient antecedent basis for this limitation in the claim. As best understood by the examiner, the intention of claim 16 was to claim that the flow profile of fluid flowing through the double cone device maintained fluid (feed fluid and feed fluid plus sucked material) in contact with the walls of the neck, porous diverging

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section, and the third diverging section. The fluid over each one of these sections could be considered as a portion of the overall feed flow profile, and thus claimed as "a first flow profile for the fluid flowing through the neck" for example. However, it would seem to contradict the aspects of the instant disclosure directed toward having no drastic changes in the flow profile through the double-cone device because the limitation suggests a partitioned flow profile and not a continuous flow profile. To properly claim "the flow profiles" in the neck and second and third diverging sections would require claiming the profiles individually with respect to those elements and referring back to "a flow profile of the fluid" of claim 1 to ensure that it was clear that the separate profiles were part of the overall profile. This claim would be unnecessarily long but a simpler way is shown below and will be considered for the office action on the merits that follows. The limitations including:

- "wherein the continuous geometry of the device is configured to cause the flow profiles of the fluid in the neck, in the second porous diverging section, and in the third diverging section to remain in contact with the wall of the neck, with the wall of the second porous diverging section, and with the wall of the third diverging section"

will be considered to be:

- --- wherein the continuous geometry of the device is configured to cause the flow ~~profiles~~ profile of the fluid flowing through the double-cone device ~~in the neck, in the second porous diverging section, and in the third diverging section~~ to remain in contact with the a wall of the neck, ~~with the~~ a wall of the

second porous diverging section, and ~~with the~~ a wall of the third diverging section ---

11. In addition to the rejection of claim 18 in section 9 above, claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite because the limitations directed to the range of hole sizes, only define the characteristics or attributes of the two values in the range. Thus it becomes unclear what will result for hole sizes between these two limits (i.e. if all the holes sizes are within a range below the mean of the range but higher than the lower limit how much reduction of noise, or suction, or loss of suction reduction of noise would result).

12. In addition to the rejection of claim 22 in section 9 above, claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite because the limitations of "the flow profiles" in line , and "the wall" in lines 2-3 of the claim. As discussed above in section 10 with reference to claim 16 the limitations of:

- "wherein the continuous geometry of the device is configured to cause the flow profiles of the fluid in the neck, in the second porous diverging section, and in the third diverging section to remain in contact with the wall of the neck, with the wall of the second porous diverging section, and with the wall of the third diverging section"

will be considered to be:

- --- wherein the continuous geometry of the device is configured to cause the flow ~~profiles~~ profile of the fluid flowing through the double-cone device in the neck, in the second porous diverging section, and in the third diverging

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~~section~~ to remain in contact with ~~the~~ a wall of the neck, ~~with the~~ a wall of the second porous diverging section, and ~~with the~~ a wall of the third diverging section ---

Allowable Subject Matter

13. Claims 9, 18, and 22, and by dependency claims 10-12, 19-21, and 23, would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is (571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Leonard J Weinstein/
Examiner, Art Unit 3746